STUDY MODULE DESCRIPTION FORM

Name of the module/subject		Code
Dynamics of Processes		**1010705221010720642**

Field of study	Profile of study (general academic, practical)	Year /Semester
Chemical Technology	**(brak)**	**1 / 2**
Elective path/specialty	Subject offered in:	Course (compulsory, elective)
General Chemical Technology	**Polish**	**obligatory**

Cycle of study:	Form of study (full-time,part-time)
Second-cycle studies	**part-time**

No. of hours	No. of credits
Lecture: **-** Classes: **-** Laboratory: **-** Project/seminars: **20**	**3**

Status of the course in the study program (Basic, major, other)	(university-wide, from another field)
(brak)	**(brak)**

Education areas and fields of science and art	ECTS distribution (number and %)
technical sciences	**100 3%**
Technical sciences	**100 3%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	W1 Student has got the necessary knowledge of mathematics sufficient to allow the use of mathematical methods to describe the issues and chemical processes and calculations needed for engineering activities W3 Student has got the necessary knowledge of chemistry in the understanding of phenomena and chemical processes
2	**Skills**	U7 Student uses computer programs supporting the execution of typical tasks of chemical and process engineering U8 Student can use of mathematical knowledge to simulate
3	**Social competencies**	K1 Student understands the need for further education and improve their professional, personal and social skills K3 Student is able to interact and work in a team, inspire, and integrate engineering environmental

Assumptions and objectives of the course:

Obtain knowledge in the construction of mathematical models of chemical processes and their solutions

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. It has a broader and deeper knowledge of mathematics and computer science needed for modeling, planning, optimization and characterization of industrial chemical processes and planning experiments and analyzing the results of experimental studieStudent has the necessary knowledge of chemistry in the understanding of phenomena and chemical processes - [K_W01, T2A_W01]

Skills:

1. Student uses advanced computer programs, supporting the implementation of tasks typical of chemical and process engineering, chemical experiments and plans to test their progress and properly interpret the results - [K_U08, T2A_U07]

2. Student has enhanced the ability to analyze and solve problems related to chemical technology and engineering process, using the theoretical, experimental and simulation methods - [K_U09, T2A_U08, T2A_U09]

Social competencies:

1. Student has awareness of the need for lifelong learning and professional development - [K_K01, T2A_K01]

2. Student follow all the rules of teamwork and has a sense of responsibility for joint ventures and achievements in work - [K_K04, T2A_K04]

Assessment methods of study outcomes

Evaluation of projects completed

Course description

In pursuit of the activities are built models that describe phenomena, chemical processes using mathematical equations. The models are based on relevant laws of physics of the process, together with (unfortunately necessary) simplifying assumptions. Analyze both models with concentrated parameters (zero-dimensional) and distributed.

Basic bibliography:

1. 1. Luyben W.L., Modelowanie symulacja i sterowanie procesów przemysłu chemicznego, Cz. I. i II., WNT, 1976 (tłumacz. McGraw-Hill, Inc., 1973)

Additional bibliography:

1. 1. A. L. Myers, W.D. Seider, ?Obliczenia komputerowe w inżynierii chemicznej?, WNT War-szawa 1979.Bieżące artykuły z zakresu technologii chemicznej.

2. Ostrowski G.M., Wolin J.M., Optymalizacja złożonych systemów technologii chemicznej, WNT, 1974

Result of average student's workload

Activity	Time (working hours)
1. Participation in activities	20
2. Implementation of the project	10
3. Participation in consultations related to the implementation of the project	5

Student's workload

Source of workload	hours	ECTS
Total workload	50	2
Contact hours	35	1
Practical activities	15	1